Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER– V (New) EXAMINATION – WINTER 2019

Subject Code: 2153602 **Date: 21/11/2019**

Subject Name: Polymer & Rubber materials - I

Time: 10:30 AM TO 01:00 PM **Total Marks: 70**

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

			MARKS
Q.1	**(a)**	Give Full name of following polymers (1) PAES (2) PEAK (3) PEEK.	**03**
	(b)	Write a short note on Nylon 6.	**04**
	(c)	Explain the polycarbonate manufacturing in detail with its structure and applications.	**07**
Q.2	**(a)**	Write the properties of Maleic anhydride.	**03**
	(b)	What do you mean by cross linking? Explain Silane method of PE crosslinking.	**04**
	(c)	Explain in detail production of PVC plastic material with neat flow diagram.	**07**
		OR	
	(c)	Write a short note on Polyamides.	**07**
Q.3	**(a)**	Write down difference between LLDPE and ULDPE.	**03**
	(b)	What are the different methods of HDPE Production. Explain any one in brief.	**04**
	(c)	Write down the detail production of SBR with the help of flow sheet.	**07**
		OR	
Q.3	**(a)**	How the PAN polymer is synthesized?	**03**
	(b)	What do you understand by toughening of thermoplastic elastomer? Explain with its mechanism.	**04**
	(c)	Explain Polyesters synthesis and its applications.	**07**
Q.4	**(a)**	Draw chemical structure of: Nylon 6, PMMA, ABS	**03**
	(b)	Draw structure and write applications of Nomex and Kevlar.	**04**
	(c)	Write a short note on following polymeric materials along with its structure. (a) PET (b) PBT (c) PTT	**07**
		OR	
Q.4	**(a)**	How polypropylene is prepared? Explain with neat flow diagram.	**03**
	(b)	Write in brief about the properties and applications of SMA copolymer.	**04**
	(c)	Write in detail about the structure, properties and applications of EPDM.	**07**
Q.5	**(a)**	Define Tg. Give Tg value of PS, PC and PP.	**03**
	(b)	Write a short note different polymers fall under the category of Liquid Crystal Polymers.	**04**
	(c)	Explain Polycarbonate synthesis via different route and also explain its applications.	**07**
		OR	
Q.5	**(a)**	Write the structure and applications of Polyoxymethylene polymer.	**03**
	(b)	What do you mean by modified polymer? Explain in detail.	**04**
	(c)	Explain in detail the production for Polyisobutylene with its structure and its applications.	**07**

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